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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/641,147	08/14/2003	Shunsuke Kakisaka	82478-0300	9055

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EXAMINER

COLON, GERMAN

ART UNIT	PAPER NUMBER
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2879

DATE MAILED: 04/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/641,147	Applicant(s) KAKISAKA ET AL.	
	Examiner German Colón	Art Unit 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Preliminary Amendment

1. The Pre-Amendment, filed on 1/12/2004, has been entered and acknowledged by the Examiner.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 3-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Geven et al. (US 5,424,609).

Regarding claim 1, Geven discloses a metal vapor discharge lamp having an arc tube (see at least Fig. 1), wherein

the arc tube includes a container made of translucent ceramic, the container being divided into a main tube portion **20** and two narrow tube portions **30a,30b** respectively extending out from both ends of the main tube portion,

a discharge space being formed in the main tube portion with a light emission metal being enclosed in the discharge space (see Col. 8, lines 25-27),

an electrode **40a,40b** being deposited in each narrow tube portion, a coil being wound around the electrode at an end thereof facing the discharge space,

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an electrode supporting member **51a** (or **52a**) being inserted in each narrow tube portion and connected to the other end of the electrode,

the arc tube is sealed by a sealing material **32a,32b** that is inserted into each space between each electrode supporting member and each narrow tube portion, and

a length of each electrode is in a range $(0.041P + 0.5)\text{mm}$ to $(0.041P + 8.0)\text{mm}$, wherein "P" represents a lamp power in watts (see Col. 8, lines 42-43 in view of Col. 11, lines 32 and 56).

Regarding claim 3, Geven discloses the electrode having a heat conductivity of no smaller than $130\text{W/m}^{\circ}\text{K}$, and the electrode supporting member having heat conductivity of no larger than $100\text{W/m}^{\circ}\text{K}$ (see Col. 8, lines 42-43; and Col. 7, lines 13-44).

Regarding claim 4, Geven discloses each electrode containing tungsten, and each electrode-supporting member containing cermet (see Col. 8, lines 42-43; and Col. 7, lines 13-44).

4. Claims 1, 8, 9 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Juengst et al. (US 5,484,315).

Referring to claims 1, 8 and 9, Juengst discloses a metal vapor discharge lamp having an arc tube (see at least Fig. 1), wherein

the arc tube includes a container made of translucent ceramic, the container being divided into a main tube portion **5** and two narrow tube portions **6a,6b** respectively extending out from both ends of the main tube portion,

a discharge space being formed in the main tube portion with a light emission metal being enclosed in the discharge space (see Col. 6, lines 26-27),

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an electrode 12 being deposited in each narrow tube portion, a coil being wound around the electrode at an end thereof facing the discharge space (see Fig. 1 in view of Figs. 4-8b),

an electrode-supporting member 9 being inserted in each narrow tube portion and connected to the other end of the electrode,

the arc tube is sealed by a sealing material 10 that is inserted into each space between each electrode supporting member and each narrow tube portion, and

a length of each electrode is in a range $(0.041P + 0.5)$ mm to $(0.041P + 8.0)$ mm and/or within a range $(0.032P + 3.5)$ mm to $(0.032P + 8.0)$ mm, wherein "P" represents a lamp power in watts (see Col. 7, lines 25-26 in view of Col. 1, lines 14-15), and

the lamp power is in the range of 70-400 watts.

Referring to claim 16, Juengst discloses the lamp power being in the range of 70-360 watts (see Col. 1, lines 14-15).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-2, 5-7, 9-13, 15 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda et al. (US 6,215,254) in view of Sugimoto et al. (US 6,208,070).

Referring to claims 1, 9 and 10, Honda discloses a metal vapor discharge lamp having an arc tube (see at least Figs. 1, 3, 6 and 7), wherein

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the arc tube includes a container made of translucent ceramic, the container being divided into a main tube portion **1a** and two narrow tube portions **1b** respectively extending out from both ends of the main tube portion,

a discharge space being formed in the main tube portion with a light emission metal being enclosed in the discharge space (see at least Col. 22, lines 57-59),

an electrode **2b** being deposited in each narrow tube portion,

an electrode-supporting member **2a** being inserted in each narrow tube portion and connected to the other end of the electrode,

the arc tube is sealed by a sealing material **3** that is inserted into each space between each electrode supporting member and each narrow tube portion, and

a length of each electrode is in a range $(0.041P + 0.5)\text{mm}$ to $(0.041P + 8.0)\text{mm}$ and/or within a range $(0.032P + 3.5)\text{mm}$ to $(0.032P + 6.0)\text{mm}$, wherein "P" represents a lamp power in watts (see at least Examples 1-3). Honda is silent regarding the limitation of a coil being wound around the electrode at an end thereof facing the discharge space.

However, in the same field of endeavor, Sugimoto discloses a metal vapor discharge lamp having electrodes including a coil wound around at an end thereof, with the purpose of providing a high temperature resistance and a low reactivity of the electrode with the emission metallic compound (see Col. 5, lines 9-13). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a coil at an end of the electrode in order to provide a high temperature resistance and a low reactivity of the electrode with the emission metallic compound.

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Referring to claim 2, Honda discloses a length of a portion of each electrode projecting from each narrow tube portion into the discharge space, being in the range of 3.0-6.5 mm (see at least Examples 1-3). The Examiner notes that Honda discloses the length of the narrow tube portion, the length of the electrode, and the amount of the electrode-supporting member disposed within the narrow tube portion.

Referring to claim 5, Honda discloses a length of each narrow tube portion being in the range of $(0.032P + 3.5)$ mm to $(0.032P + 8.0)$ mm, wherein "P" represents a lamp power (see Ex. 1-3).

In regards to claims 6 and 12, Honda discloses the sealing material being inserted into each narrow tube portion from an outer end not facing the discharge space, a length of the sealing material being in a range of 3.7 to 5.5 mm (see at least Example 2, at Col. 23, lines 21-26).

In regards to claims 7 and 15, Honda discloses the main tube portion **1a** and the narrow tube portions **1b** being formed in one piece (see at least Figs. 1-3).

In regards to claim 11, Honda discloses the claimed invention except for the limitation of the light emission metal including cerium.

However, it has been held to be within the general skill of an artisan to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. Thus, it would have been obvious to one having ordinary skills in the art at the time the invention was made to have provide cerium in the light emission metal compound, since the selection of known materials for a known purpose is within the skill of the art. Further, it is well known in the art that different compositions emit light of a particular wavelength. Thus, one of ordinary

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skill in the art would entertain the idea of providing cerium as part of the discharge medium in order to produce light of a preferred wavelength.

Regarding claim 13, Honda discloses the wall thickness in the main tube portion and in the narrow tube portions being the same (see the Examples).

Regarding claims 17 and 18, Honda discloses the metal vapor discharge lamp being used in a lighting apparatus, comprising a main body, and a lighting circuit apparatus connected to the metal vapor discharge lamp (see Figs. 8-17).

7. Claims 4 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda-Sugimoto as applied to claims 1 and 9 above, and further in view of Geven et al. (US 5,424,609).

Regarding claims 4 and 14, Honda-Sugimoto discloses the claimed invention except for the limitation of the electrode-supporting member containing cermet.

However, in the same field of endeavor, Geven discloses a metal vapor discharge lamp comprising an electrode-supporting member containing cermet, and teaches that by providing such cermet, the differences in the coefficient of expansion of the electrode-supporting member and the ceramic envelope are minimized. Also, it renders possible to realize a comparatively low temperature of the permeable portion with a comparatively small length of the electrode-supporting member portion (see Col. 7, lines 13-44). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a cermet in order to minimize the differences in the coefficient of expansion of the electrode-supporting member and the ceramic envelope; and to render possible to realize a comparatively low temperature of the

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permeable portion with a comparatively small length of the electrode-supporting member portion.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to German Colón whose telephone number is 571-272-2451. The examiner can normally be reached on Monday thru Thursday, from 8:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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